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10/747,923	12/29/2003	Jeffrey Dean Lindsay	18587	7066
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/747,923

**Applicant(s)**

LINDSAY ET AL.

**Examiner**

MELANIE J. HAND

**Art Unit**

3761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-68 is/are pending in the application.
- 4a) Of the above claim(s) 52-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see Remarks, filed December 28, 2007, with respect to the rejection(s) of claim(s) 1 and 3-51 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly found prior art reference.

### ***Claim Objections***

2. Claim 45 is objected to because of the following informalities: the phrase "in first direction" appears to contain a grammatical error. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 3761

4. Claims 1, 3-22, 24-27, 33-46 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing et al (WO 03/095190 A1).

With respect to **claim 1**: Fearing teaches a disposable absorbent article comprising a nanofabricated attachment means comprising seta structures 10 disposed on a flexible substrate 16. (Page 6, lines 18-24) The hairs 10 are effective to adhesively engage an opposing surface via adhesion of protrusions 14 disposed at the end of setae 10 to the opposing surface. The opposing surface comprises a polymeric film or fibrous web inasmuch as Fearing teaches that the attachment means can be used as a clothes fastener. (Page 21, lines 14,20)

With regard to the limitation "wherein the attachment means has a packing density of at least 500 hairs per square millimeter", Fearing teaches throughout the disclosure that the instant fastener is mimicking the superior capability of a gecko to adhere to surfaces (especially Page 16, lines 18-20) and that the foot of a gecko has approximately 5,000 setae (i.e. hairs) per square millimeter that collectively achieve a certain adhesive force that allows the gecko to stay secured to the surface. (Page 8, lines 27-31) Fearing does not explicitly teach a packing density within the claimed range for setae (hairs) 10. However, it would be obvious to one of ordinary skill in the art to modify the article of Fearing such that the attachment means having hairs 10 thereon has a packing density of 5,000 hairs per square millimeter to achieve the superior adhesion force achieved by the gecko for adhering to other surfaces.

With regard to the limitation "a disposable absorbent article", Fearing teaches that the instant fastener material can be used as a clothes fastener. Fearing does not explicitly teach a disposable absorbent article. However, since the instant fastener can be used as a clothes fastener, the fastener is considered herein to also be fully capable of functioning as a fastener on a disposable absorbent article. It would be obvious to one of ordinary skill in the art to use

the fastener taught by Fearing as a fastener on an absorbent article with a reasonable expectation of success to provide a fastening means for securing the article in position on the wearer during use. The prior art of Fearing thus fairly suggests a disposable absorbent article in combination with the instant fastener, rendering the limitation "a disposable article" obvious.

With respect to **claim 3**: The hairs 10 have an average diameter measured as stalk diameter of between about 50 nanometers (0.05 microns) and 2.0 microns (Page 7, line 4), which falls entirely within the claimed range of about 50 microns or less. The hairs 10 have an height in the form of a stalk length that is between 0.5-20 microns. (Page 7, lines 3,4) Therefore the average height-to-diameter ratio of the hair 10 having stalk 12 is  $(0.5-20 \text{ microns}) / (0.05-2 \text{ microns})$ , or 0.1-400, which overlaps and renders obvious the claimed range of about 3 or greater.

With respect to **claim 4**: The hairs 10 are effective to adhesively engage an opposing surface comprising a polymeric film or fibrous web in the form of a clothing surface with an average adhesive force of 60-2,000 nanoNewtons via protrusions thereon (Page 7, lines 9-11), which overlaps the claimed range of 10 nanoNewtons or greater per hair.

With respect to **claim 5**: Fearing teaches a disposable absorbent article comprising a gecko-like adhesive fastener including a flexible substrate 16, a plurality of adhesive hairs 10 rising from said substrate. The adhesive hairs 10 each have a base section in the form of a shaft, a midsection in the form of a stalk and a top section. The hairs have a stalk height of between 0.5-20 microns, (Page 7, lines 3,4), which overlaps and renders obvious the claimed range of about 0.5 microns to 8 mm. The hairs have an average stalk diameter of between about 50

Art Unit: 3761

nanometers (0.05 microns) and 2.0 microns, which falls entirely within the claimed range of about 0.05 microns to about 50 microns.

With respect to **claim 6**: The hairs 10 terminate in a plurality of fine terminating elements in the form of spatulae or hairs 14, inasmuch as the terminating elements 14 are nanoscale elements. (Figs. 13A-C, Page 23,24) The term "fine" is described in the disclosure as "approaching the dimensions of gecko setae" (Specification, Page 17, lines 10,11), which Fearing teaches for the dimensions of the terminating elements 14, as the elements 14 are biomimetic gecko foot hairs. (Page 16, line 18)

With respect to **claim 7**: The hairs 10 of Fearing have a stalk height of between 0.5-20 microns, (Page 7, lines 3,4) which overlaps and renders obvious the claimed range of about 2 microns to about 1000 microns.

With respect to **claim 8**: The hairs 10 of Fearing have an average diameter, measured as stalk diameter, that is between about 50 nanometers (0.05 microns) and 2.0 microns (Page 7, line 4), which falls entirely within the claimed range of about 0.05 microns to about 10 microns.

With respect to **claim 9**: The hairs 10 are spaced apart by a first distance  $\Delta$  greater than  $2 \times \text{radius}$  of the stalk 12 of the hair 10, which is equal to the stalk diameter. Thus, the hairs 10 are spaced apart by a first distance  $\Delta$  of between 50 nanometers (0.05 microns) and 2.0 microns (Page 7, line 4), which overlaps and renders obvious the claimed range of about 1 micron to about 1000 microns.

Art Unit: 3761

With respect to **claim 10**: The hairs 10 are spaced apart by a second distance that is also equal to  $\Delta$  since Fearing teaches a square lattice arrangement for the hairs 10. (Fig. 3, Page 10, lines 19,20,26) Thus, the hairs 10 are spaced apart by a second distance, also equal to  $\Delta$ , of between 50 nanometers (0.05 microns) and 2.0 microns (Page 7, line 4), which overlaps and renders obvious the claimed range of about 1 micron to about 1000 microns.

With respect to **claim 11**: The ratio of a first distance  $\Delta$  between said hairs 10 to the diameter of said hairs 10 is greater than 1, since the first distance  $\Delta$  taught by Fearing is greater than the hair stalk diameter  $2r$ . (Page 10, lines 25,26) This range overlaps and renders obvious the claimed range of about 3 to about 100.

With respect to **claim 12**: The ratio of a second distance  $\Delta$  between said hairs to the diameter of said hairs 10 is also greater than 1, since the second distance  $\Delta$  is also greater than the hair stalk diameter  $2r$ , which overlaps the claimed range of about 3 to about 100. (Fig. 3, Page 10, lines 19,20,25,26)

With respect to **claim 13**: The hairs 10 have an average stalk height-to-diameter ratio of (0.5-20 microns)/(0.05-2 microns), i.e. of 0.1-400, which overlaps and renders obvious the claimed range of about 2 to about 1000. (Page 7, lines 3,4)

With respect to **claim 14**: At least one of said hairs 10 taught by Fearing is perpendicular to the plane of said substrate 16. (Fig. 3)

Art Unit: 3761

With respect to **claim 15**: At least one of said hairs 10 is perpendicular to the plane of the substrate and thus is oriented at an angle of  $90^\circ$  to the plane of said substrate, which falls within the claimed range of between  $0^\circ$  and  $90^\circ$  to the plane of said substrate. (Fig. 3)

With respect to **claim 16**: At least one of said hairs 10 is axisymmetric. (Fig. 3)

With respect to **claim 17**: At least one of said hairs 10 has a base in the form of stalk 12 that is axisymmetric and an end portion in the form of spatula 14 that is flattened. (Fig. 1A, Page 6, lines 19-21)

With respect to **claim 18**: Fearing teaches that an array of spatulae 14 at the end of a stalk 12 can have between 1 and 1,000 spatulae and is 1 micron wide. (Page 7, lines 13,14) Thus the stalk can have one spatulae that is 1 micron wide. Fearing does not teach a thickness for the spatulae. However, Fearing teaches alternate structures to the spatulae for terminating elements 14, namely spheres having a radius of 0.15 microns and a length of 1 microns which falls within the disclosed range used to calculate the height to diameter ration *supra* for the same embodiment disclosed by Fearing. Fearing teaches an  $r(\max)$  of between 0.7-1 micron that cannot be exceeded for a length between 1.9-20 microns for the embodiments of Fearing used to reject the claims. If the radius exceeds  $r(\max)$ , the spheres may stick to one another rather than the opposing surface. (Page 12, Table 1, lines 8-10) Since the radius also serves as a thickness for a sphere, the radius and  $r(\max)$  function as an equivalent thickness for a sphere or spatula 14. It would be obvious to one of ordinary skill in the art to modify the article of Fearing such that the thickness of the spatulae is equal to an equivalent thickness which in turn equal to  $r(\max)$  to prevent the spatulae from sticking to one another. The ratio of the width



Art Unit: 3761

of said flattened end to the thickness of said flattened end as fairly suggested by Fearing is thus at least (1 micron)/(0.7-1 micron) or at least about 1 to about 1.4, effectively at least about 1.

This range overlaps and renders obvious the claimed range of about 2 to about 25.

With respect to **claim 19**: Fearing teaches that the flattened end portion 14, a spatula, has a length that is greater than  $9 \times (\text{stalk radius})$  to obtain a desired stiffness ratio 100:1 for proper adhesion. (Page 10, lines 5-16) Thus, the length is greater than 4.5 times the stalk diameter, or greater than between 0.225-9 microns. Therefore, the range for the length of the spatula is at least 0.225 microns. The stalk length of hair 10 is between 0.5 -20 microns. (Page 7, lines 3,4) Therefore, the flattened end portion, the spatula, occupies 1.1-45 % of the stalk length, i.e. the height of the hair 10. This range overlaps and renders obvious the claimed range of about 5 percent to about 80 percent of said height of said hair.

With respect to **claim 20**: Fearing teaches that at least one of the hairs 10 is grown as organic carbon nanotubes, which are hollow. Thus, Fearing teaches that at least one of said hairs 10 is hollow. (Page 19, lines 9-12)

With respect to **claim 21**: The at least one hair 10 comprises carbon nanotubes. (Page 19, lines 9-12)

With respect to **claim 22**: The hairs 10 comprise carbon nanotubes, which are cylindrical carbon molecules, i.e. they are molecules with hollow chambers.

Art Unit: 3761

With respect to **claim 24**: Fearing teaches a first template for fabrication of the hairs comprising substrate 16 having a first set of micro- or nano-holes, i.e. the substrate 16 is apertured. (Page 6, lines 27-30, Page 17, lines 15,16, Page 18, lines 11-14)

With respect to **claim 25**: The substrate 16 taught by Fearing is comprised of polyester, polyurethane or polyimide, all of which are liquid impervious materials, therefore the substrate 16 is a liquid impervious web.

With respect to **claim 26**: The thickness of said substrate 16 comprises a repeating pattern of thickness variations inasmuch as the substrate contains an array of micro- or nanoholes present in an repeating pattern. (Page 6, lines 27-30, Page 17, lines 15,16, Page 18, lines 11-14)

With respect to **claim 27**: The substrate 16 is apertured inasmuch as it contains micro- or nano-holes. (Page 6, lines 27-30, Page 17, lines 15,16, Page 18, lines 11-14)

With respect to **claim 33**: The substrate 16 taught by Fearing comprises a polyurethane, considered herein to be thermoplastic polyurethane inasmuch as Fearing teaches that substrate 16 is comprised of a flexible or compliant substrate. (Col. 6, lines 27-30) Thermoplastic polyurethane is a thermoplastic elastomer that is flexible and compliant and necessarily comprises regions of elastic material.

With respect to **claim 34**: The substrate 16 taught by Fearing is made solely from thermoplastic polyurethane, thus the substrate 16 is homogenous. The substrate 16 is also substantially

Art Unit: 3761

elastic inasmuch as Fearing teaches that it is comprised of thermoplastic polyurethane, which is a thermoplastic elastomeric material, and is thus also an elastic material. (Col. 6, lines 27-30)

With respect to **claim 35**: The substrate 16 taught by Fearing contains discrete elastic regions separated by less elastic regions defined the areas wherein the hairs 10 are attached to the substrate 16. The polymeric hairs 10 are molded from polymer 54 to the substrate 16 functioning as template 52 (Page 18, lines 23-31), creating an interruption in the substrate surface 16 and thus defining inelastic regions. (i.e. less elastic regions when compared to the remainder of the uninterrupted elastic substrate surface) The discrete elastic regions of substrate 16 are thus separated by less elastic regions.

With respect to **claim 36**: The substrate 16 taught by Fearing contains discrete elastic regions separated by less elastic regions defined the areas wherein the hairs 10 are attached to the substrate 16. The polymeric hairs 10 are molded from polymer 54 to the substrate 16 functioning as template 52 (Page 18, lines 23-31), creating an interruption in the substrate surface 16 and thus defining inelastic regions. The discrete elastic regions of substrate 16 are thus separated by less elastic regions.

With respect to **claim 37**: The fastener taught by Fearing having the hairs 10 thereon is stretchable because its base material, substrate 16, is stretchable inasmuch as it is made from elastomeric material. (Page 6, lines 27-30)

With respect to **claim 38**: The fastener taught by Fearing comprises elastic regions (contributed by the elastic nature of substrate 16) inasmuch as the surface of substrate 16 is elastic but

Art Unit: 3761

interrupted by inelastic areas where hairs 10 are molded thereto. (Page 6, lines 27-30, Page 18, lines 23-31)

With respect to **claim 39**: An attachment surface of said fastener taught by Fearing, i.e. the surface of substrate 16 having the attachment hairs 10 thereon, is elastic inasmuch as the material from which substrate 16 is made is elastomeric and elastic. (Col. 6, lines 27-30)

With respect to **claim 40**: The fastener taught by Fearing is used as a clothes fastener, and is thus adapted for fastening to another surface (Page 21, line 20), and is thus necessarily also adapted for fastening said article to itself inasmuch as the adhesive protrusions are capable of engaging other protrusions and the substrate material.

With respect to **claim 41**: The fastener taught by Fearing is used as a clothes fastener, and is thus adapted for fastening said article to another object, namely a surface of an article of clothing. (Page 21, line 20)

With respect to **claim 42**: The fastener taught by Fearing is adapted for joining two or more components of an absorbent article inasmuch as it functions as tape, which is fully capable of joining two or more components in an absorbent article. (Page 21, line 14)

With respect to **claim 43**: Fearing teaches that the adhesive microstructures can be used as tape. (Page 21, line 14) Fearing does not explicitly teach that the instant fastener comprises part of a side seam of an absorbent article. However, such tape tab fasteners are well known in the absorbent article art for their use as part of a side seam in such an article to maintain the

article in place around the torso of a wearer. Therefore, it would be obvious to one of ordinary skill in the art to use the tape fastener taught by Fearing in an absorbent article such that the fastener comprises part of a side seam of said article with a reasonable expectation of success to provide a means for closing the seam such that the article is secured around the waist of a wearer.

With respect to **claim 44**: The fastener taught by Fearing, having said adhesive hairs 10 thereon, comprises a three-dimensional topography characterized by a series of peaks, formed under vacuum before the hairs 10 around the micro and nano-holes as the vacuum has greater force in and around the holes, and valleys all remaining regions of the substrate. (Page 18, lines 23-33)

With respect to **claim 45**: The peaks (formed under vacuum around the micro and nano-holes as the vacuum has greater force in and around the holes) and valleys (all remaining regions of the substrate) alternate in a first direction. (Page 18, lines 23-33)

With respect to **claim 46**: The groups of hairs 10 are selectively disposed on said peaks of said substrate inasmuch as the peaks are formed around the micro- and nano-holes where the hairs are to be molded to the substrate under vacuum when the liquid polymer is molded thereto. The hairs 10 are then formed from the liquid polymer 54. (Page 18, lines 23-33)

With respect to **claim 49**: The fastener taught by Fearing comprises substantially hair-free regions between groups of hairs 10. (Figs. 13A-C)

With respect to **claim 50**: The hairs 10 taught by Fearing are disposed substantially uniformly along the fastener on the tops of stalks 50. (Fig. 13A-C)

With respect to **claim 51**: Fearing does not teach that said hairs are disposed substantially randomly along the fastener. However, such a random placement would still effect attachment to another object equally well when compared to the square lattice pattern taught by Fearing. Therefore, it would be obvious to one of ordinary skill in the art to modify the fastener of Fearing such that said hairs are disposed substantially randomly along the fastener with a reasonable expectation of success to ensure and maintain the fastener's ability to attach to another object.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing et al ('190) in view of Borchardt (see attached PTO-892 form for full citation).

With respect to **claim 23**: Fearing teaches oriented structures molded with a wax or silicone rubber kind of material" to provide a template and then molded with a polymer as alternate structures for the hairs 10 to the carbon nanotubes. Fearing does not explicitly teach that the molecule (oriented structure) having a hollow chamber is a cyclodextrin, crown ethers, polyhedral oligomeric silsequioxanes (hereafter, "POSS"), or a combination thereof. Borchardt teaches that POSS structures reinforce polyesters, polyamides and cellulosic polymers, taught by Fearing as applied to the siloxane (silicone rubber-like material), and increase its glass transition temperature to provide the structural strength of a nanotube while preserving the non-corrosive nature of the polymer thereon. Therefore it would be obvious to one of ordinary skill in the art to modify the article of Fearing such that the hairs comprise a POSS molecule having a

Art Unit: 3761

hollow chamber as taught by Borchardt to provide a material for the instant hairs that can endure multiple uses of the fastener having the hairs thereon and to prevent risk of corrosion.

6. Claims 28 and 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing in view of Teed (U.S. Patent No. 4,645,501).

With respect to **claim 28**: Fearing does not teach a coated substrate 16. Teed teaches a fastener for an absorbent article comprising a tape fastener coated with adhesive (i.e. a coating) on one surface. ('501, Col. 4, lines 43-46) Since the teachings of Fearing and Teed seek to solve a similar problem in the art (i.e. providing a fastener material for securing one substrate to another), it would be obvious to one of ordinary skill in the art to modify the fastener taught by Fearing so as to comprise a substrate having a coating of adhesive on at least one surface as taught by Teed with a reasonable expectation of success to provide additional means on the instant tape fastener for securing one object to another. The combined teaching of Fearing and Teed renders the limitation "wherein said coating is on at least one side of said substrate" obvious.

With respect to **claim 29**: Fearing does not teach a hydrophobic coating on said substrate. Teed teaches a fastener having a coating of polyethylene hot melt adhesive on one surface of said fastener, wherein polyethylene hot melt adhesive is hydrophobic. ('501, Col. 7, lines 11-16) Since the teachings of Fearing and Teed seek to solve a similar problem in the art (i.e. providing a fastener material for securing one substrate to another), it would be obvious to one of ordinary skill in the art to modify the fastener taught by Fearing so as to comprise a substrate having a coating of polyethylene hot melt adhesive on at least one surface as taught by Teed with a

reasonable expectation of success to provide additional means on the instant tape fastener for securing one object to another. The combined teaching of Fearing and Teed renders the limitation "wherein said coating is hydrophobic" obvious.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing et al ('190) in view of Wu (U.S. Patent No. 6,350,517).

With respect to **claim 30**: Fearing does not teach that substrate 16 has a hydrophilic coating. Wu teaches an adhesive tape comprising a substrate coated on one surface with hydrophilic acrylic glue. ('517, Col. 2, Example 1, lines 39-42) Since the teachings of Fearing and Wu seek to solve a similar problem in the art (i.e. providing a fastener material for securing one substrate to another), it would be obvious to one of ordinary skill in the art to modify the fastener taught by Fearing so as to comprise a substrate having a coating of hydrophilic acrylic glue on at least one surface as taught by Wu with a reasonable expectation of success to provide additional means on the instant tape fastener for securing one object to another. The combined teaching of Fearing and Wu renders the limitation "wherein said coating is hydrophilic" obvious.

8. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing et al ('190) in view of Moji et al (U.S. Patent No. 4,716,067)

With respect to **claim 31**: Fearing does not teach a coating on substrate 16 that is a metal oxide. Moji teaches an apertured film with integrated embedded fastener. Moji teaches that the substrate is comprised of titanium that is subsequently anodized, i.e. a titanium dioxide layer, which is a metal oxide layer, is created and thickened on at least one side of the substrate. Moji



Art Unit: 3761

teaches that said substrate and integrated fastener has a high fastener load capability, therefore it would be obvious to one of ordinary skill in the art to modify the article of Fearing to provide a fastener with a high fastener load capability as taught by Moji to ensure that the article is secure during wear. ('067, Col. 3, lines 30-35, Col. 4, lines 9-16) The combined teaching of Fearing and Moji renders the limitation "wherein said coating is a metal oxide" obvious.

With respect to **claim 32**: Fearing does not teach a coating on substrate 16 that is a metal oxide. Moji teaches an apertured film with integrated embedded fastener. Moji teaches that the substrate is comprised of titanium that is subsequently anodized, i.e. a titanium dioxide layer, which is a metal oxide layer, is created and thickened on at least one side of the substrate. The metal oxide is titanium dioxide treated with a primer in the form of a nitrile phenolic adhesive, which is capable of absorbing UV light. The resulting honeycomb substrate layer 15 taught by Moji having titanium dioxide coating treated with UV absorbing adhesive primer is then baked at 200 °F, i.e. the substrate 15 having metal oxide coating treated with UV-absorbing material is thermally treated. Moji teaches that said substrate and integrated fastener as fabricated according to the instant invention has a high fastener load capability, therefore it would be obvious to one of ordinary skill in the art to modify the article of Fearing to provide a fastener with a high fastener load capability as taught by Moji to ensure that the article is secure during wear. ('067, Col. 3, lines 30-35, Col. 4, lines 9-16) The combined teaching of Fearing and Moji renders the limitation "wherein said metal oxide is titanium dioxide treated with a UV absorbing material that is thermally treated" obvious.

9. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing et al ('190) in view of Mizutani (U.S. Patent No. 5,683,377).

With respect to **claim 47**: Fearing does not teach that the hairs are protected from contamination with other materials until pressed into contact with an opposing surface. Mizutani teaches an absorbent article and teaches that it is well known in the absorbent article art to provide release liners that cover adhesive areas defined by the array hairs such as that taught by Fearing to prevent contamination of the adhesive areas with other particles, e.g. dust. ('377, Col. 1, lines 9-14) Thus it would be obvious to one of ordinary skill in the art to modify the fastener taught by Fearing so as to have a release sheet thereon as taught by Mizutani to prevent contamination from other particles. The limitation "wherein said hairs are protected from contamination with other materials until pressed in contact with an opposing surface" is thus rendered obvious by the combined teaching of Fearing and Mizutani.

With respect to **claim 48**: Fearing does not teach that the hairs are protected with a removable cover. Mizutani teaches an absorbent article having a removable cover in the form of a release sheet covering an adhesive area for attaching to an undergarment prior to use. ('377, Abstract) Mizutani teaches that it is well known in the absorbent article art to provide release liners that cover adhesive areas defined by the array hairs such as that taught by Fearing to prevent contamination of the adhesive areas with other particles, e.g. dust. ('377, Col. 1, lines 9-14) Thus it would be obvious to one of ordinary skill in the art to modify the fastener having hairs thereon taught by Fearing so as to have a release sheet thereon as taught by Mizutani to prevent contamination from other particles. The limitation "wherein said hairs are protected with a removable cover" is thus rendered obvious by the combined teaching of Fearing and Mizutani.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELANIE J. HAND whose telephone number is (571)272-6464. The examiner can normally be reached on Mon-Thurs 8:00-5:30, alternate Fridays 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tatyana Zalukaeva can be reached on 571-272-1115. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Melanie J Hand/  
Examiner, Art Unit 3761